

MAMMOMAT 300

SP

Installation

Installation Instructions

IONTOMAT Automatic Exposure Control (AEC)
Upgrade kit, software v. 2.5 A (from firmware v. 2.5)

Kit part. No. 62 98 975

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Chapter	Page	Revision
All	All	01

1	Prerequisites	1 - 1
	General	1 - 1
	Documents required	1 - 1
	Tools and meters required	1 - 1
	Time required	1 - 1
2	Installing the new firmware	2 - 1
	Parts included	2 - 1
	Installation	2 - 1
3	Programming	3 - 1
	Programming	3 - 1
	Sensitivity	3 - 1
	Sensitivity correction	3 - 2
	Correction curve	3 - 2
4	Checking the film density	4 - 1
	Checking the film density	4 - 1
5	Checking the automatic transparency adaptation	5 - 1
	Checking the automatic transparency adaptation	5 - 1
6	Final procedures	6 - 1
	Final procedures	6 - 1

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General

This modification will improve the accuracy and repeatability of the IONTOMAT for four different film/screen types; Kodak, Fuji and two Agfa types, see Tab. 1 on Page 3 - 1.

The tolerances of the AEC are specified for $\gamma \leq 4$. Since the density is highly dependent on the developing process, we recommend you to check the constancy of the developing process by **doing a sensitometry check before and after the modification.**

NOTICE

This upgrade applies only to Mammomat 300 machines with stand and generator software version 2.5 and service program version 2.5. Machines with generator software version 2.3 or 2.4 must first be upgraded with software kit 62 98 678.

Documents required

Mammomat 300 Installation and Start-Up Instructions

Mammomat 300 Service Instructions

Mammomat 300 Wiring Diagram

Tools and meters required

Standard installation tool kit

Service PC (e.g. Siemens Nixdorf PCD3-NSX/20 or similar) with connecting cable (PC – Generator), part no. 99 00 440 RE999.

Sensitometer, e.g. X-Rite 333, part no. 97 02 424 Y1996

Densitometer, e.g. X-Rite 331, part no. 97 02 416 Y1996

AEC calibration plexi 65 61 240. It's also possible to use other plexiglass plates (three plates measuring 150 mm x 150 mm x 20 mm and one plate measuring 150 mm x 150 mm x 10 mm, part no. 85 49 438 and 97 88 423 respectively, or according to Speedinfo RX 32-95)

Time required

2 hours/ 1 person.

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Parts included

Amount	Part. No.	Name	Software version
1	65 19 263	Generator IONTOMAT PROM D701/ J113	2.5 A
1	65 90 116	Installation Instructions (this document)	

Tab. 1

Installation

1. Remove the front cover from the generator, see Mammomat 300 Service Instructions, page 2-5.
2. Exchange the IONTOMAT EPROM:

CAUTION

Make sure that the PROM is positioned with its semi-circular mark in the same direction as the mark on the actual p.c. board. Use ESD tools.

J 113 on IONTOMAT board D 701, see Mammomat 300 Wiring Diagram page 5-10 and 6-1.

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Programming

The tables in this kit are optimized for the following four film/screen combinations. Curve x1 is used for magnification tables and curve x2 for other object tables (with or without grid).

Film	Screen	Casette	Sensitivity		Correction Curve	
			H	D	H : Non-magnification	D : Magnification
Kodak Min-R 2000	Kodak Min-R 2000	Kodak Min-R 2	10.0	10.0	A2	A1
Agfa HDR	Agfa Detail S	Agfa Mammoray	8.5	7.5	B2	B1
Fuji AD-M	Fuji AD Medium	Fuji EC-MA	4.5	4.5	C2	C1
Agfa HDR	Agfa Detail R	Agfa Mammoray	3.5	3.0	D2	D1



Tab. 1

NOTICE

The sum of sensitivity, sensitivity correction and film density adjustment must be +2.0 or more.

Sensitivity

Program the IONTOMAT values as follows:

- Start with the sensitivities listed in Tab. 1 above for channel B for H() and D(). See also Mammomat 300 Service Instructions and Mammomat 300 Installation Instructions.

NOTICE

Be sure to use the same type of cassette, screen and film in each object table as the customer uses.

IONTOMAT PM - Sensitivity

		H	D
Channel A	None	0	0
Channel B	24 x 30	10.0	10.0

Valid entries from 0 to 31 in 1/2 E.P.
Input of decimal point not required!

1 Help

2 Save

3

4

5

6



7

8

9

10 Quit

MAMM00819

Indicates the sensitivity for the IONTOMAT channel for contact exposure tables  (H) and magnification tables  (D).

Values from 0 to 31 can be entered.

Channel A is not used, the sensitivity is therefore set 0.

Sensitivity correction

- Program "Sensitivity correction" to 0 for "without grid" and 0 for "magnification".

IONTOMAT PM - Sens. correction

	24 x 30
Without grid	_0
With grid	.0
Magnification	.0

Valid entries from -8 to 8 in 1/2 E.P.
For pos entries 1 st digit is < space >, for neg entries type < - >.
Input of decimal point not required!

1 Help 2 Save 3 4 5 6 7 8 9 10 Quit

MAM00127

Indicates the sensitivity correction for different types of object tables.

The position "without grid" applies to tables with as well as without grid.

Set to "0", "0", "0".

Different film-density corrections can be programmed for the different tables with the "Sens-cor" module.

Correction curve

- Program "Correction curve" according to Tab. 1 on Page 3 - 1 (see also Mammomat 300 Service Instructions).



IONTOMAT PM - Correction curve

	Curve number
Speed H	_A2
Speed D	A1

Press space to change the correction-curve table.

1 Help 2 Save 3 4 5 6 7 8 9 10 Quit

MAM00128

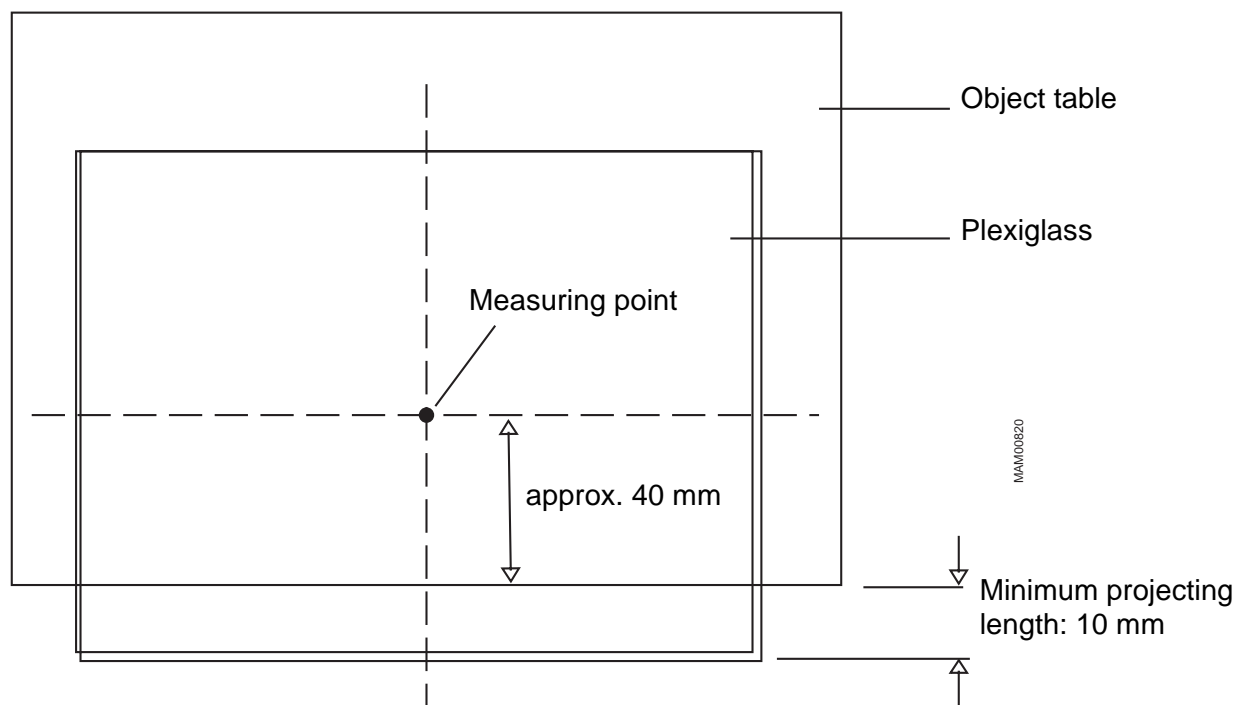
Indicates which correction curve shall be used for contact exposure tables  (H) and magnification tables  (D).

For further information, please refer to the Mammomat 300 Installation and Start-Up Instructions, chapter "Start-up and functional test of the IONTOMAT".

Checking the film density



The sensitivity to be programmed must be determined by means of test exposures at 25 kV, or kV preferred by the customer, and 20 mm plexiglass.

- The plexi must extend at least 30 mm behind the rear edge of the detector marking on the compression plate and 10 mm beyond the chest wall edge of the table.
- The detector shall be nearest the chest wall.
- When making test exposures, ensure correct positioning of the plexiglass plates.



NOTICE

Detector nearest chest wall. Place the plexi plates in the same position for all exposures and measure the density as shown above on the emulsion side of the film.

- Button D () should be used for magnification tables and button H () for other object tables (with or without grid).
- Start with the sensitivity listed in Tab. 1 on Page 3 - 1 and adjust a density of approximately 1.5 for non- magnification tables ("Sensitivity H").
- Change to magnification table, if used, and program "Sensitivity D" for the density as above.

The final values are dependent on the type of cassette used and desired optical density.

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Checking the automatic transparency adaptation

- Check the automatic transparency adaptation with a grid table with 20, 40 and 60 mm plexi at the voltage(s) preferred by the customer (within 25-35 kV). If the dose rate is too low (error 013 or "Limit"), use 50 mm plexi instead of 60 mm.

Tolerance: ≤ 0.3 density difference at constant voltage and thickness 20-60 mm.
 ≤ 0.3 at constant thickness and 25 - 35 kV.

NOTICE

Tolerance valid for grid tables and film/screen combination according to Tab. 1 on Page 3 - 1.

These limits apply for film with max. gamma 5.0 measured at the density chosen.

NOTICE

The film density levels may vary from cassette to cassette. Therefore, be sure to use one and the same cassette for all test exposures.

NOTICE

The IONTOMAT may produce underexposed films with thicker objects at lower voltages with magnification and film/ screens which require low sensitivity. Performance improves with higher kV.

5 - 2 Checking the automatic transparency adaptation

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Final procedures

- Fit the front cover to the generator and fasten it with the 16 screws. Make sure that all 8 contact washers (4 on each side) are used again as in the original assembly to establish protective ground connection. The washers must be functional and the screws must be securely tightened (see also Mammomat 300 Service Instructions and Mammomat 300 Installation and Start-Up Instructions).

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